

CLAIMS

1. A semiconductor device module structure comprising:
 - a high-resistance layer of a first conductive type;
 - 5 a base layer of a second conductive type formed in an upper part of the high-resistance layer of the first conductive type;
 - an emitter region of a first conductive type formed in an upper part of the base layer of the second conductive type;
 - an emitter electrode connected to the emitter region;
 - 10 an insulated gate electrode adjacent to the base layer of the second conductive type;
 - a guard ring part where diffusion around a cell region including the emitter region has been made deep;
 - 15 a passivation layer formed on the upper part of the guard ring part and not extending onto the upper part of the cell region;
 - a collector layer of the second conductive type formed on the underside of a buffer layer of the first conductive type;
 - a collector electrode connected to the collector layer; and
 - 20 a metal flat plate upper heat-sinking part connected to the emitter electrode at a height such that it is non-contacting with the passivation film.
2. The semiconductor device module structure of claim 1, characterized in that the module structure of a semiconductor device further comprises a diode part, and a cathode electrode at an upper part of the diode part and the upper 25 heat-sinking part are connected.